

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To: TROESCH SCHEIDEGGER WERNER AG Attn. Irrniger, Ernst Schwäntenmos 14 CH-8126 Zumikon SWITZERLAND				
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> Received - 8. Nov. 2004 </div>				
Frist:	BH	TX	BO	SB: <i>EL</i>

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference P204583 EI/yb	FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/CH2004/000494	International filing date (day/month/year) 06/08/2004
Applicant ETHZ	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until **30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the International Searching Authority <div style="display: flex; align-items: center;"> <div> European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016 </div> </div>	Authorized officer Ellen Elskamp
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NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the International application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

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NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P204583 EI/yb	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/CH2004/000494	International filing date (day/month/year) 06/08/2004	(Earliest) Priority Date (day/month/year) 08/08/2003
Applicant ETHZ		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box II).

3. ☐ Unity of invention is lacking (see Box III).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regards to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/CH2004/000494

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

A rotating stirring device for generating substantially narrow distribution of energy dissipation rate and avoiding presence of Taylor vortices is disclosed. The device comprises an outer member (1) such as a cylinder with cross-section of circular shape and an inner member (2) with cross-section of equilateral or inequilateral polygon shape with curved cusps. The inner member is preferably concentrically placed within the outer cylinder and rotates. Such device is particularly advantageous as a reactor or mixer for processes where chemical and physical properties are sensitive to the variations in the shear rate and for processes that involve fragile components. The device can be also used to replace Taylor Couette device for the purposes of improving mass transfer and of avoiding separation of components in the gap in the case of presence of differences in density among components.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/CH2004/000494

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B01F7/28 B01F7/00 B01F15/06 B01J19/18 B01J10/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B01F B01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 103 229 A (A & P CHEM SAFETY SERV) 16 February 1983 (1983-02-16) cited in the application	1-4,6,7, 11-19
Y	page 1, line 5 - line 8	9,10
	page 1, line 29 - line 53	
A	page 2, line 20 - line 42	
	page 2, line 47 - line 50	5,8
	figures 1,2	
X	US 3 407 046 A (MASSOUBRE JEAN-MARIE) 22 October 1968 (1968-10-22)	1-4,8, 11-19
Y	column 1, line 14 - line 19	9,10
	column 1, line 56 - line 67	
	column 3, line 61 - line 75	
A	figures 1,3	5-7
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

1 November 2004

Date of mailing of the international search report

08/11/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
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Fax: (+31-70) 340-3016

Authorized officer

Real Cabrera, R

INTERNATIONAL SEARCH REPORT

International Application No
PCT/CH2004/000494

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 175 871 A (SUH NAM P ET AL) 27 November 1979 (1979-11-27)	1-5,7, 11-19
Y	column 3, line 63 - column 4, line 13 column 8, line 46 - line 65 column 9, line 6 - line 32	9,10
A	figure 5	6,8
X	GB 931 590 A (HANS JOACHIM ZIMMER) 17 July 1963 (1963-07-17)	1-4,7, 11-19
Y	page 1, line 44 - line 60 page 1, line 67 - line 68 page 2, line 9 - line 18	9,10
A	figures	5,6,8
X	EP 0 194 812 A (UNILEVER PLC ;UNILEVER NV (NL)) 17 September 1986 (1986-09-17)	1-7, 11-19
Y	page 1, line 19 - page 2, line 9 page 3, line 4 - line 9 page 3, line 18 - page 4, line 20 page 5, line 19 - page 6, line 16 page 6, line 24 - page 7, line 8	9,10
A	figures 1,2,4	8
Y	US 4 911 847 A (BADIALI MARIO ET AL) 27 March 1990 (1990-03-27) abstract	9,10

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/CH2004/000494

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 2103229	A	16-02-1983	NONE	
US 3407046	A	22-10-1968	FR 1431773 A BE 675780 A DE 1301523 B GB 1132245 A NL 126771 C NL 6601061 A	15-06-1966 16-05-1966 21-08-1969 30-10-1968 02-08-1966
US 4175871	A	27-11-1979	DE 2625617 A1 FR 2332797 A1 GB 1555775 A IT 1061892 B JP 52038672 A	30-12-1976 24-06-1977 14-11-1979 30-04-1983 25-03-1977
GB 931590	A	17-07-1963	NONE	
EP 0194812	A	17-09-1986	AT 57107 T AU 591479 B2 AU 5439186 A BR 8601004 A CA 1299840 C DE 3674604 D1 EP 0194812 A2 IN 165621 A1 JP 1732028 C JP 4018892 B JP 61209037 A ZA 8601598 A	15-10-1990 07-12-1989 11-09-1986 18-11-1986 05-05-1992 08-11-1990 17-09-1986 25-11-1989 17-02-1993 30-03-1992 17-09-1986 25-11-1987
US 4911847	A	27-03-1990	CA 1266443 A1 DE 3480588 D1 DE 3486197 D1 DE 3486197 T2 EP 0165992 A1 EP 0277660 A2 JP 6067458 B JP 61500716 T US 4790942 A WO 8502783 A1 US 4876013 A	06-03-1990 04-01-1990 09-09-1993 02-12-1993 02-01-1986 10-08-1988 31-08-1994 17-04-1986 13-12-1988 04-07-1985 24-10-1989

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